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EXAMINER

MOORE, JAMES K

ART UNIT

PAPER NUMBER

2682

DATE MAILED: 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

11

Office Action Summary

Application No.

09/595,557

Applicant(s)

DIXON, ROBERT C. 

Examiner

James K Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 13
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 2, 2002 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 21-25 have been considered but are moot in view of the new ground(s) of rejection.

3. The indicated allowability of claims 1-20 is withdrawn in view of the newly discovered reference(s) to Schmidt (U.S. Patent No. 4,765,753), D'Amico et al. (U.S. Patent No. 5,127,100), and Goldman (U.S. Patent No. 4,129,749), and in view of an inspection of applicant's disclosure. Rejections based on the newly cited reference(s) follow.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature "wherein

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each user station in said first cell is assigned a second transmission frequency" in claims 1, 12, 21, and 23; the feature "wherein the communication between the base station... and the user stations in said first cell are time division duplexed" in claim 7; and the feature "wherein said base station is further assigned a first spread spectrum code... and wherein said user stations in said first cell are each assigned a second spread spectrum code" in claim 12 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claim 11 is objected to because of the following informalities: "is adjacent to another member of said first class of cells" should be inserted following "wherein no member of said first class of cells". Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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7. Claims 1-6, 12-20, and 22-25 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 1, 12, and 23, the specification does not disclose a wireless communication system wherein a base station is assigned a first transmission frequency not assigned to any base station in adjacent cells, and each user station is assigned a second transmission frequency not assigned to any user stations in adjacent cells. The specification discloses only two embodiments of the wireless communication system wherein a base station is assigned a first transmission frequency and each user station is assigned a second transmission frequency. However, in both of these embodiments, the first transmission frequency is also assigned to base stations in adjacent cells, and the second transmission frequency is also assigned to user stations in adjacent cells. See col. 4, line 49 through col. 5, line 5.

Also regarding claim 12, the specification fails to disclose a wireless communication system wherein a base station is assigned a first spread spectrum code and user stations are assigned a second spread spectrum code.

Regarding claim 22, the specification fails to disclose a wireless communication system wherein a base station transmits over a first frequency, user stations in communication with the base station transmit over a second frequency different from the first frequency, and the base station communicates with the user stations using time division duplexing.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 21 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 recites the limitation "said first code" in line 9 on page 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

11. Claims 1, 2, 5, 21, and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmidt (U.S. Patent No. 4,765,753).

Regarding claim 1, Schmidt discloses a wireless communication system comprising a pattern of cells, a base station, and user stations. The base and the user stations communicate using TDMA. The base station is assigned a first transmission frequency (a broadband frequency) for transmitting to a first cell. The first transmission frequency is not assigned to any base station in a cell adjacent to the first cell. Each user station in the first cell is assigned a second transmission frequency (a narrow-band frequency) for transmitting to the base station of the first cell. The second transmission frequency is not assigned to any user station in any cell adjacent to the first cell. See col. 1, line 35 through col. 3, line 8.

Regarding claim 2, Schmidt discloses all of the limitations of claim 1. In addition, Schmidt's first transmission frequency is inherently from a first set comprised of a limited first predetermined number of frequencies (the frequency bands allocated by the FCC). Schmidt also discloses that the second transmission frequency is from a second set comprised of a limited second predetermined number of frequencies (the frequencies of the set of channels allocated to the first cell). See col. 2, lines 49-59. The first cell of frequencies is different than the second set of frequencies.

Regarding claim 5, Schmidt discloses all of the limitations of claim 1, and also discloses that the user stations are dynamically assigned the second transmission frequency. See col. 2, lines 53-59.

Regarding claim 21, Schmidt discloses a multiple user wireless communication system comprising a plurality of cells and a base station located in each cell. Transmitters in a first cell are assigned a first code for modulating radio communication in the first cell and radio signals in the first cell are spread across a bandwidth sufficiently wide that receivers in a second cell adjacent to the first cell may distinguish communication which originates in the first cell from communication which originates in the second cell. The first cell is not adjacent to any other cell using a first code (code-division multiplexing the cells). See col. 2, lines 26-48. The base station transmits over a first frequency (broadband) and the user station in communication with the base station transmit over a second frequency (narrowband) different from the first frequency. See col. 2, line 49 through col. 3, line 8.

Regarding claim 23, Schmidt discloses a wireless communication system comprising a plurality of cells, a base station, and user stations. The base station is assigned a first transmission frequency (a broadband frequency) for transmitting to a first cell. The first transmission frequency is not assigned to any base station in a cell adjacent to the first cell. Each user station in the first cell is assigned a second transmission frequency (a narrow-band frequency) for transmitting to the base station of the first cell. The second transmission frequency is not assigned to any user station in any cell adjacent to the first cell. The base station and user stations are assigned codes for modulating radio communication for the cell. See col. 1, line 35 through col. 3, line 8.

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12. Claims 7-10 are rejected under 35 U.S.C. 102(e) as being anticipated by D'Amico et al. (U.S. Patent No. 5,127,100).

Regarding claim 7, D'Amico discloses a wireless communication system comprising a pattern of cells, base stations, and user stations. See col. 2, lines 25-38. The base stations and user stations communicate using TDMA. See col. 2, line 55 through col. 3, line 4. A base station which transmits to a cell is assigned a transmission frequency which is not assigned to any base station in an adjacent cell. See col. 3, lines 22-48. Each user station in the cell is assigned the transmission frequency for transmitting to the base station and the communication between the base station and the user stations are time division duplexed. See col. 2, line 55 through col. 3, line 4.

Regarding claim 8, D'Amico discloses all of the limitations of claim 7, and it is inherent that a user station in the cell transmits data communication messages which include station identification information when the user station originates a telephone call.

Regarding claims 9 and 10, D'Amico discloses all of the limitations of claim 7 and also discloses that the the transmission frequency is dynamically assigned. See col. 3, lines 22-48.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goldman (U.S. Patent No. 4,129,749) in view of Schmidt.

Regarding claim 3, Goldman discloses a wireless communication system comprising a base station (10) and user stations (12). The base and user stations communicate using time division multiplexing. The base station is assigned a first transmission frequency (F1) for transmitting to the user stations and each user station is assigned a second transmission frequency (F2) for transmitting to the base station. See Figure 1 and col. 2, line 43 through col. 3, line 2. Goldman does not disclose: that the wireless communication system comprises a pattern of cells; that the transmission frequency of the base station is not assigned to any adjacent base stations; that the transmission frequency of the user stations is not assigned to any other user stations in adjacent cells; that the first transmission frequency is from a first set comprised of three frequencies; or that the second transmission frequency is from a second set comprised of three frequencies.

However, Schmidt teaches a wireless communication system comprising a pattern of cells which reduces co-channel interference among the cells by separating the set of message channels assigned to each base station such that no two adjacent cells use the same band of frequencies. See col.1, lines 35-50 and col. 2, lines 26-48. Three frequency bands are re-used in the pattern of cells. See Figure 1. It is apparent

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to one of skill in the art by examining Figure 1 that three is the lowest number that is required to ensure that no two adjacent cells use the same frequency bands. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Goldman with Schmidt, such that the transmission frequencies of the base station and user stations are not used in adjacent cells, in order to reduce co-channel interference. It would have also been obvious to one of ordinary skill in the art at the time of the invention to further modify Goldman with Schmidt, such that number of frequency bands re-used by base stations and user stations in a pattern of cells is three, in order to maximize the user capacity of each cell in the wireless communication system.

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over D'Amico in view of Schmidt.

Regarding claim 11, D'Amico discloses all of the limitations of claim 7, and all discloses that the pattern of cells may comprise a repeated pattern of cells (frequency reuse). See col. 3, lines 22-32. D'Amico does not disclose that the repeated pattern consists of three classes of cells, wherein no member of a class of cells is adjacent to a cell which is a member of the same class.

However, Schmidt teaches a wireless communication system comprising a pattern of cells which reduces co-channel interference among the cells by separating the set of message channels assigned to each base station such that no two adjacent cells use the same band of frequencies. See col.1, lines 35-50 and col. 2, lines 26-48. Three classes (frequency bands) are re-used in the pattern of cells. See Figure 1. It is

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apparent to one of skill in the art by examining Figure 1 that three is the lowest number that is required to ensure that no two adjacent cells use the same frequency bands. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify D'Amico with Schmidt, such that that the repeated pattern consists of three classes of cells, wherein no member of a class of cells is adjacent to a cell which is a member of the same class, in order to maximize the user capacity of each cell in the wireless communication system.

Conclusion

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ken Moore, whose telephone number is (703) 308-6042. The examiner can normally be reached on Monday-Friday from 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached at (703) 308-6739.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Ken Moore

10/16/02

JKM



VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600